

R307. Environmental Quality, Air Quality.**R307-340. Ozone Nonattainment and Maintenance Areas: Surface Coating Processes.****R307-340-1. Purpose.**

The purpose of this rule is to establish Reasonably Available Control Technology(RACT), for surface coating operations that are located in an ozone nonattainment or maintenance area. This rule is based on federal control technique guidance documents.

R307-340-2. Applicability.

R307-340 applies to the owner or operator who applies surface coating of paper, fabric, vinyl, metal furniture, large appliance, magnet wire, flat wood, miscellaneous metal parts and products, and graphic arts in any ozone nonattainment or maintenance area.

R307-340-3. Definitions.

The following additional definitions apply to R307-340:

"Air Dried Coating" means coatings that are dried by the use of air or a forced warm air at temperatures up to 90 degrees C (194 degrees F).

"Application Area" means the area where the coating is applied by spraying, dipping, or flow coating techniques.

"Basecoat" means a primary flat wood coating or coloring of panels and normally should completely hide substrate characteristics.

"Capture System" means the equipment (including hoods, ducts, fans, etc.) used to contain, capture, or transport a pollutant to a control device.

"Class II Hard Board Paneling Finish" means finishes that meet the specifications of voluntary product standards PS-9-73 as approved by the American National Standards Institute.

"Clear Coat" means a coating that lacks color and opacity.

"Coating" means a protective, functional, or decorative film applied in a thin layer to a surface. This term often applies to paints such as lacquers or enamels, but is also used to refer to films applied to paper, plastics, or foil.

"Coating Application System" means all operations and equipment that applies, conveys, and dries a surface coating, including, but not limited to, spray booths, flow coaters, flash off areas, air dryers and ovens.

"Curtain Coating" means the application of a coating material to a wood substrate by means of a free-falling film of coating.

"Exterior Single Coat" means the same as topcoat but is applied directly to the metal substrate omitting the primer application.

"Extreme Performance Coatings" means coatings designed for harsh exposure or extreme environmental conditions.

"Fabric Coating" means the coating or saturation of a textile substrate with a knife, roll or rotogravure coater to impart characteristics that are not initially present, such as strength, stability, water or acid repellency, or appearance.

"Filler" means a type of coating used to fill pores, voids, and cracks in wood to provide a smooth surface. It can also be

1 used to accentuate the grain of natural hardwood veneers.

2 "Flat Wood Coating" means the surface coating of any flat
3 wood products.

4 "Flexographic Printing" means the application of works,
5 designs, and pictures to substrate by means of a roll printing
6 technique in which the pattern to be applied is raised above the
7 printing roll and the image carrier is made of rubber or other
8 elastomeric materials.

9 "Groove Coat" means a flat wood coating that covers grooves
10 cut into the panel to assure that the grooves are compatible with
11 the final surface color.

12 "Hardwood Plywood" means plywood whose surface layer is a
13 veneer of hardwood.

14 "Ink" means a flat wood coating used to put a decorative
15 design on printed panels. It can also produce special appearances
16 on natural hardwood plywood.

17 "Interior Single Coat" means a single film of coating applied
18 to internal parts of large appliances that are not normally
19 visible to the user.

20 "Knife Coating" means the application of a coating material
21 to a substrate by means of drawing the substrate beneath a blade
22 that spreads the coating evenly over the width of the substrate.

23 "Large Appliances" means doors, cases, lids, panels, and
24 interior support parts of residential and commercial washers,
25 dryers, ranges, refrigerators, freezers, water heaters,
26 dishwashers, trash compactors, air conditioners, and other similar
27 products.

28 "Low Organic Solvent Coating" means coatings that contain
29 less organic solvents than the conventional coatings used by
30 industry. Low organic solvent coatings include water-borne,
31 higher-solids, electrodeposition, and powder coatings.

32 "Magnet Wire Coating" means the process of applying coating
33 of electrical insulating varnish or enamel to aluminum or copper
34 wire for use in electrical machinery.

35 "Metal Furniture Coating" means the surface coating of any
36 furniture made of metal or any metal part that will be assembled
37 with other metal, wood fabric, plastic, or glass parts to form a
38 furniture piece.

39 "Natural Finish Hardwood Plywood Panels" means panels whose
40 original grain pattern is enhanced by essentially transparent
41 finishes frequently supplemented by fillers and toners.

42 "Packaging Rotogravure Printing" means rotogravure printing
43 upon paper, paper board, metal foil, plastic film, and other
44 substrates, which are, in subsequent operations, formed into
45 packaging products and labels.

46 "Paper Coating" means uniform distribution of coatings put on
47 paper and pressure sensitive tapes regardless of substrate.
48 Related web coating processes on plastic film and decorative
49 coatings on metal foil are included in this definition. Paper
50 coating covers saturation operations as well as coating
51 operations. (Saturation means dipping the web into a bath).

52 "Particle Board" means a manufactured board made of
53 individual particles that have been coated with a binder and

1 formed into flat sheets by pressure.

2 "Pressure Head Coating" means the application of a coating
3 material to a wood substrate by means of a pressure head coater
4 where coating material is metered into a pressure head and forced
5 through a calibrated slit between two knives.

6 "Prime Coat" means the first film of coating applied in a
7 two-coat operation.

8 "Primer" means a flat wood coating used to protect the wood
9 from moisture and to provide a good surface for further coating
10 applications.

11 "Printed Interior Panels" means panels whose grain or natural
12 surface is obscured by fillers or basecoats upon which a simulated
13 grain or decorative pattern is printed.

14 "Publication of Rotogravure Printing" means rotogravure
15 printing upon paper that is subsequently formed into books,
16 magazines, catalogues, brochures, directories, newspaper
17 supplements, and other types of printed materials.

18 "Roll Coating" means the application of a coating material to
19 a substrate by means of hard rubber or steel rolls.

20 "Roll Printing" means the application of words, designs and
21 pictures to a substrate usually by means of a series of hard
22 rubber or steel rolls each with only partial coverage.

23 "Rotogravure Coating" means the application of a uniform
24 layer of material across the entire width of the web to substrate
25 by means of a roll coating technique in which the pattern to be
26 applied is etched on the coating roll. The coating material is
27 picked up in these recessed areas and is transferred to the
28 substrate.

29 "Rotogravure Printing" means the application of words,
30 designs, and pictures to a substrate by means of a roll printing
31 technique that involves a recessed image area in the form of
32 cells.

33 "Sealer" means a type of coating used to seal off substances
34 in the wood that may affect subsequent finishes as well as protect
35 the wood from moisture.

36 "Single Coat" means a single film of coating applied directly
37 to the metal substrate omitting the primer application.

38 "Specialty Printing Operations" means all gravure and
39 flexographic operations that print a design or image, excluding
40 publication gravure and packaging gravure printing. Specialty
41 printing operations include, among other things, printing on paper
42 cups and plates, patterned gift wrap, wallpaper, and floor
43 coverings.

44 "Stain" means a nonprotective flat wood coating that colors
45 the wood surface without obscuring the grain.

46 "Tile Board" means paneling that has a colored waterproof
47 surface coating.

48 "Vinyl Coating" means applying a decorative or protective top
49 coat, or printing on vinyl coated fabric or vinyl sheets.

50
51 **R307-340-4. General Provisions for Volatile Organic Compounds.**

52 (1) Fugitive emissions. Control techniques and work
53 practices are to be implemented at all times to reduce volatile

1 organic compound (VOC) emissions from fugitive type sources.
2 Control techniques and work practices include:

- 3 (a) tight fitting covers for open tanks;
- 4 (b) covered containers for solvent wiping cloths;
- 5 (c) collection hoods for areas where solvent is used for
6 cleanup; and
- 7 (d) proper disposal of dirty cleanup solvent.

8 (2) Record keeping and reporting.

9 (a) The owner or operator of any source subject to R307-340
10 shall maintain:

11 (i) Records detailing all malfunctions affecting control
12 equipment;

13 (ii) Records of all testing conducted under R307-340-15;

14 (iii) Records of all monitoring conducted under R307-340-15;
15 and

16 (iv) Records of the daily use of all paints, stains,
17 lacquers, solvents, and other materials that may be a source of
18 VOC emissions.

19 (v) The recording format shall, at a minimum, follow the
20 guidance in EPA-340/1-88-003, "Recordkeeping Guidance Document for
21 Surface Coating Operations and the Graphic Arts Industry", or the
22 most recent EPA guidance, and shall contain all information
23 necessary to determine compliance with emissions limits on a daily
24 basis.

25 (b) The owner or operator shall:

26 (i) Install; operate; and maintain process or control
27 equipment, or both; monitoring instruments or procedures; as
28 necessary to comply with (2)(a) above; and

29 (ii) Maintain, in writing, data or reports, or both,
30 relating to monitoring instruments or procedures to document, upon
31 review, the compliance status of the VOC emission source or
32 control equipment.

33 (c) Copies of all records and reports required by (2)(a) and
34 (b) above shall be retained by the owner or operator for a minimum
35 of two years after the date on which the record was made, and
36 shall be made available to the executive secretary or
37 representative upon verbal or written request.

38 (d) If add-on control equipment is used, in addition to the
39 requirements of R307-340-15(5), the following information, as
40 determined applicable for each source by the executive secretary,
41 shall be monitored and recorded daily in order to assure
42 continuous compliance. The substitution of continuous recordings
43 of system operation for daily recordings may be allowed by the
44 executive secretary. The required information pertains to the
45 following systems:

46 (i) capture systems: fan power use, duct flow, and duct
47 pressure.

48 (ii) carbon absorbers systems: bed temperature, bed vacuum
49 pressure, pressure at the vacuum pump, accumulated time of
50 operation, concentration of VOCs in the outlet gas, and solvent
51 recovery.

52 (iii) refrigeration systems: compressor discharge and
53 suction pressures, condenser fluid temperature, and solvent

1 recovery.

2 (iv) incinerator systems: exhaust gas temperature,
3 temperature rise across a catalytic incinerator bed, flame
4 temperature, and accumulated time of incineration.

5 (3) Malfunctions, Breakdowns, and Upsets. The owner or
6 operator of a surface coating installation shall maintain a record
7 of malfunctions, breakdowns, and upsets that result in excess VOC
8 emissions. The record shall be kept for a calendar year and shall
9 be submitted to the executive secretary by April 1 of the
10 following year.

11 (4) Disposal of waste solvents. Waste solvents or waste
12 materials that contain solvents shall be disposed of by recycling,
13 reclaiming or by incineration in an incinerator approved to
14 process hazardous materials or by an alternate means approved by
15 the executive secretary.

16 (5) Compliance Calculation Procedures.

17 (a) Compliance with R307-340 shall be determined on a daily
18 basis. Sources may request approval for longer times for
19 compliance determination from the executive secretary.

20 (b) Compliance calculation procedures shall follow the
21 guidance of "Procedures for Certifying Quantity of [~~Volatile~~
22 ~~Organic Compounds~~]VOCs Emitted by Paint, Ink, and other Coatings,"
23 EPA-450/3-84-019, or the most recent EPA guidance. Sources that
24 use add-on controls, or an approved alternative strategy instead
25 of low solvent technology to meet the applicable emission limit,
26 shall meet the equivalent VOCs emission limit on the basis of
27 solids applied (lbs. VOCs/gallon solids applied, or lbs. VOCs/lb.
28 solids applied, for graphic arts sources).

30 R307-340-5. Paper Coating.

31 (1) R307-340-5 applies to roll, knife rotogravure coaters
32 and drying ovens of paper coating operations.

33 (2) No owner or operator of a paper coating operation
34 subject to R307-340-5 may cause, allow or permit the discharge
35 into the atmosphere of any VOC in excess of 0.35 kilograms per
36 liter of coating (2.9 pounds per gallon), excluding water and
37 solvents exempt from the definition of [~~volatile organic~~
38 ~~compounds~~]VOC, delivered to the coating application from a paper
39 coating operation.

40 (3) Equivalency calculations for coatings should be
41 performed in units of lbs. VOCs/gallon of solid rather than lbs.
42 VOC/gallon of coating when determining compliance. The equivalent
43 emission limit is 4.8 lbs. VOC/gallon of solid.

44 (4) The emission limit specified above shall be achieved by:

45 (a) The application of a low solvent technology coating; or

46 (b) Incineration, provided that a minimum of 90 percent of
47 non-methane [~~volatile organic compounds~~]VOCs (VOCs measured as
48 total combustible carbon) that enter the incinerator are oxidized
49 to carbon dioxide and water; or

50 (c) Through carbon adsorption provided that there is a
51 minimum of 90% reduction efficiency of captured VOC emissions.

52 (5) The design, operation, and efficiency of any capture
53 system used in conjunction with (4) above shall be certified in

1 writing by the owner or operator and approved by the executive
2 secretary.

3
4 **R307-340-6. Fabric and Vinyl Coating.**

5 (1) R307-340-6 applies to roll, knife or rotogravure coaters
6 and drying ovens of fabric and vinyl coating operations.

7 (2) No owner or operator of a fabric or vinyl coating line
8 subject to this section may cause, allow or permit the discharge
9 into the atmosphere of any [~~volatile organic compounds~~]VOCs in
10 excess of:

11 (a) 0.35 kilograms per liter of coating (2.9 pounds per
12 gallon), excluding water and solvents exempt from the definition
13 of [~~volatile organic compound~~]VOC, delivered to the coating
14 applicator from a fabric coating line; or

15 (b) 0.45 kilograms per liter of coating (3.8 pounds per
16 gallon), excluding water and solvents exempt from the definition
17 of [~~volatile organic compound~~]VOC, delivered to the coating
18 applicator from a vinyl coating line.

19 (3) Equivalency calculations for coatings shall be performed
20 in units of lbs. VOCs/gallon[s] of solids rather than lbs.
21 VOCs/gallon of coating when determining compliance. The
22 equivalent emission limits shall be 4.8 lbs VOCs/gallon solids for
23 fabric coating, and 7.9 lbs VOCs/gallon for vinyl coating.

24 (4) Organosol and plastisol coatings shall not be used to
25 bubble emissions from vinyl printing and topcoating.

26 (5) The emission limitations specified above shall be
27 achieved by:

28 (a) The application of a low solvent content coating
29 technology; or

30 (b) Incineration, provided that a minimum of 90 percent of
31 the non-methane [~~volatile organic compounds~~]VOCs (VOCs measured as
32 total combustible carbon) that enter the incinerator are oxidized
33 to carbon dioxide and water; or

34 (c) Through carbon adsorption provided that there is a
35 minimum of 90 percent reduction efficiency of captured VOC
36 emissions.

37 (6) The design, operation, and efficiency of any capture
38 system used in conjunction with (5) above shall be certified in
39 writing by the owner or operator and approved by the executive
40 secretary.

41
42 **R307-340-7. Metal Furniture Coating VOC Emissions.**

43 (1) R307-340-7 applies to the application areas, flash-off
44 areas, and ovens of metal furniture coating lines involved in
45 prime and top-coat or single coat operations.

46 (2) No owner or operator of a metal furniture coating line
47 subject to this section may cause, allow or permit the discharge
48 into the atmosphere of any [~~volatile organic compound~~]VOC in
49 excess of 0.3 kilograms per liter of coating (3.0 pounds per
50 gallon) excluding water and solvents exempt from the definition of
51 [~~volatile organic compounds~~]VOC, delivered to the coating
52 applicator from prime and topcoat or single coat operations.

53 (3) Equivalency calculations for coatings shall be performed

1 in units of lbs. VOCs/gallon of solid rather than lbs. VOCs/gallon
2 of coating when determining compliance. The equivalent emission
3 limit is 5.1 lbs. VOCs/gallon solids.

4 (4) The emission limitation specified above shall be
5 achieved by:

6 (a) The application of low solvent technology; or

7 (b) Incineration, provided that a minimum of 90 percent of
8 the non-methane [~~volatile organic compounds~~]VOCs (VOCs measured as
9 total combustible carbon) that enter the incinerator are oxidized
10 to carbon dioxide and water; or

11 (c) using water-borne electrodeposition; or

12 (d) using water-borne spray, dip or flowcoat; or

13 (e) using powder; or

14 (f) using higher solids spray; or

15 (g) carbon adsorption.

16 (5) The design, operation, and efficiency of any capture
17 system used in conjunction with (4) above shall be certified in
18 writing by the owner or operator and approved by the executive
19 secretary.
20

21 **R307-340-8. Large Appliance Surface Coating VOC Emissions.**

22 (1) R307-340-[6]8 applies to application areas flash-off
23 areas and ovens of large appliance coating lines involved in
24 prime, single or top coating operations.

25 (2) No owner or operator of a large appliance coating line
26 subject to this section may cause, allow or permit the discharge
27 to the atmosphere of any [~~volatile organic compounds~~]VOCs in
28 excess of 0.34 kilograms per liter of coating (2.8 pounds per
29 gallon), excluding water and solvents exempt from the definition
30 of [~~volatile organic compound~~]VOC, delivered to the coating
31 applicator from prime, single, or top-coat coating operations.

32 (3) Equivalency calculations for coatings shall be performed
33 in units of lbs. VOCs/gallon of solid rather than lbs. VOCs/gallon
34 of coating when determining compliance. The equivalent emission
35 limit is 4.5 lbs. VOCs/gallon solids.

36 (4) The emission limitations specified above shall be
37 achieved by:

38 (a) The application of low solvent content technology; or

39 (b) Incineration provided 90 percent of the non-methane
40 [~~volatile organic compounds~~]VOCs (VOCs measured as total
41 combustible carbon) that enter the incinerator are oxidized to
42 carbon dioxide and water; or

43 (c) using water-borne electrodeposition; or

44 (d) using water-borne spray, dip or flowcoat; or

45 (e) using powder; or

46 (f) using higher solids spray; or

47 (g) carbon adsorption.

48 (5) The design, operation, and efficiency or any capture
49 system used in conjunction with (4) above shall be certified in
50 writing by the owner or operator.
51

52 **R307-340-9. Magnet Wire Coating VOC Emissions.**

53 (1) R307-340-9 applies to ovens of magnet wire coating

1 operations.

2 (2) No owner or operator of a magnet wire coating oven
3 subject to this section may cause, allow or permit discharge into
4 the atmosphere of any [~~volatile organic compounds~~]VOCs in excess
5 of 0.20 kilograms per liter of coating (1.7 pounds per gallon),
6 excluding water and solvents exempt from the definition of
7 [~~volatile organic compound~~]VOC, delivered to the coating
8 applicator from magnet wire coating operations.

9 (3) Equivalency calculations for coatings shall be performed
10 in units of lbs. VOCs/gallon of solid rather than lbs. VOCs/gallon
11 of coating when determining compliance. The equivalent emission
12 limit is 2.2 lbs. VOCs/gallon solids.

13 (4) The emission limitations specified above shall be
14 achieved by:

15 (a) The application of low solvent content coating
16 technology; or

17 (b) Incineration, provided that a minimum of 90 percent of
18 the non-methane [~~volatile organic compounds~~]VOCs (VOCs measured as
19 total combustible carbon) that enter the incinerator are oxidized
20 to carbon dioxide and water; or

21 (5) The design, operation, and efficiency of any capture
22 system used in conjunction with (4)(b) above shall be certified in
23 writing by the owner or operator and approved by the executive
24 secretary.

25 26 **R307-340-10. Flat Wood Coating.**

27 (1) R307-340-10 applies to the application areas of flat
28 wood coating operations involved in but not limited to, filler,
29 sealer, groove coat, primer, stain, basecoat, inks, and topcoat
30 operations.

31 (2) No owner or operator of an interior printed hardwood,
32 plywood, and particle board coating operation may cause, allow or
33 permit discharge to the atmosphere of any [~~organic-volatile~~
34 ~~compound~~]VOCs in excess of a weighted average VOC content of 0.20
35 kilograms per liter of coating (1.7 pounds per gallon), excluding
36 water and solvents exempt from the definition of [~~volatile organic~~
37 ~~compound~~]VOC, delivered to a coating applicator from, but not
38 limited to, filler, sealer, groove coat, primer, stain, basecoat,
39 ink and topcoat operation.

40 (3) No owner or operator of a natural finish hardwood
41 plywood coating operation may cause, allow or permit discharge to
42 the atmosphere any [~~organic-volatile compound~~]VOCs in excess of a
43 weighted average VOC content of 0.40 kilograms per liter of
44 coating (3.3 pounds per gallon) excluding water and solvents
45 exempt from the definition of [~~volatile organic compound~~]VOC,
46 delivered to a coating applicator from, but not limited to,
47 filler, sealer, groove coat, primer, stain basecoat, ink and
48 topcoat operations.

49 (4) No owner or operator of a Class II hardwood panel finish
50 operation may cause, allow, or permit discharge to the atmosphere
51 of any [~~organic-volatile compound~~]VOCs in excess of a weighted
52 average VOC content of 0.34 kilograms per liter of coating (2.8
53 pounds per gallon), excluding water and solvents exempt from the

1 definition of ~~[volatile organic compound]~~ VOC, delivered to a
2 coating applicator from, but not limited to, filler, sealer,
3 groove coat, primer, stain, basecoat, ink, and topcoat operations.

4 (5) The emission limitations specified above shall be
5 achieved by:

6 (a) The application of low solvent technology; or

7 (b) The application of water-borne coating technology; or

8 (c) The application of ultraviolet-curable coating
9 technology; or.

10 (6) This regulation does not apply to the manufacture of
11 exterior siding, tile board, or particle board used as a furniture
12 component.

13 (7) Equivalency calculations for coatings shall be performed
14 in units of lbs. VOCs/gallon[s] of solid rather than lbs.
15 VOCs/gallon[s] of coating when determining compliance. The
16 equivalent emission limit for interior printed hardwood, plywood,
17 and particle board coating is 2.2 lbs. VOCs/gallon solids. The
18 equivalent emission limit for natural finish hardwood plywood
19 coating shall be 6.0 lbs. VOCs/gallon solids. The equivalent
20 emission limit for Class II hardwood panel finish operations is
21 4.5 lbs. VOCs/gallon solids.

22
23 **R307-340-11. Miscellaneous Metal Parts and Products VOC**
24 **Emissions.**

25 (1) R307-340-11 applies to the application areas, flash-off
26 areas air and forced air dryers, and ovens used in the surface
27 coating of miscellaneous metal parts and products:

28 (2) Applicable Industries:

29 (a) Large farm machinery (harvesting, fertilizing, planting,
30 tractors, combines, etc.)

31 (b) Small farm machinery (lawn and garden tractors, lawn
32 mowers, rototillers, etc.)

33 (c) Small appliance (fans, mixers, blenders, crock pots,
34 vacuum cleaners, etc.)

35 (d) Commercial machinery (computers, typewriters,
36 calculators, vending machines, etc.)

37 (e) Industrial machinery (pumps, compressors, conveyor
38 components, fans, blowers, transformers, etc.)

39 (f) Fabricated metal products (metal covered doors, frames,
40 trailer frames, etc.)

41 (g) Any other industrial category that coats metal parts or
42 products under the standard Industrial Classification Code of
43 major group 33 (primary metal industries), major group 34
44 (fabricated metal products), major group 35 (nonelectric
45 machinery), major group 36 (electrical machinery), major group 37
46 (transportation equipment) major group 38 (miscellaneous
47 instruments), and major group 39 (miscellaneous manufacturing
48 industries).

49 (h) This regulation does not apply to:

50 (i) the surface coating of automobiles and light-duty
51 trucks,

52 (ii) flat metal sheets and strips in the form of rolls or
53 coils,

1 (iii) exterior of airplanes,
2 (iv) automobile refinishing,
3 (v) exterior of marine vessels,
4 (vi) customized top coating of automobiles and trucks if
5 production is less than 35 vehicles per day,
6 (vii) a source whose potential VOC emissions are less than
7 10 tons/year. Potential emissions are based upon design capacity
8 (or maximum production), and 8760 hours/year, before add-on
9 controls. The potential emission level is determined on a plant-
10 wide basis, summing all individual emission sources within the
11 miscellaneous metal parts and products category.

12 (3) No owner or operator of a facility engaged in the
13 surface coating of miscellaneous metal parts and products may
14 cause, allow or permit discharge to the atmosphere of any
15 ~~[volatile organic compounds]~~VOCs in excess of:

16 (a) 0.52 kilograms per liter (4.3 pounds per gallon) of
17 coating, excluding water and solvents exempt from the definition
18 of ~~[volatile organic compound]~~VOC, delivered to a coating
19 applicator that applies clear coating;

20 (b) 0.42 kilograms per liter (3.5 pounds per gallon) of
21 coating, excluding water and solvents exempt from the definition
22 of ~~[volatile organic compound]~~VOC, delivered to a coating
23 applicator in a coating application system that utilizes air or
24 forced warm air at temperatures up to 90 degrees C (194 degrees
25 F);

26 (c) 0.42 kilograms per liter (3.5 pounds per gallon) of
27 coating, excluding water and solvents exempt from the definition
28 of ~~[volatile organic compound]~~VOC, delivered to a coating
29 applicator that applies extreme performance coatings;

30 (d) 0.36 kilograms per liter (3.0 pounds per gallon) of
31 coating, excluding water and solvents exempt from the definition
32 of ~~[volatile organic compound]~~VOC, delivered to a coating
33 applicator for all other coating and coating application systems.

34 (4) Equivalency calculations for coatings shall be performed
35 in units of lbs. VOCs/gallon of solid rather than lbs. VOCs/gallon
36 of coating when determining compliance. The equivalent emission
37 limit for air dried items is 6.7 lbs. VOCs/gallon solids. The
38 equivalent emission limit for clear-coated items is 10.3 lbs.
39 VOCs/gallon solids. The equivalent emission limit for extreme
40 performance coatings is 6.7 lbs. VOCs/gallon solids. The
41 equivalent emission limit for other coatings and systems is 5.1
42 lbs. VOCs/gallon solids.

43 (5) If more than one emission limitation indicated in this
44 section applies to a specific coating, then the least stringent
45 emission limitation shall apply. All ~~[volatile organic
46 compound]~~VOC emissions from solvent washing involved in a coating
47 process shall be considered in the emission limitations set forth
48 in R307-340-11(3), unless the solvent is directed into containers
49 that prevent evaporation into the atmosphere.

50 (6) The emission limitations set forth in (3) above shall be
51 achieved by:

52 (a) The application of low solvent technology; or

53 (b) An incineration system that oxidizes a minimum of 90

1 percent of the non-methane [~~volatile organic compounds~~]VOCs (VOCs
2 measure[s]d as total combustible carbon) to carbon dioxide and
3 water.

4 (7) The design, operation, and efficiency of any capture
5 system used in conjunction with (6)(b) above shall be certified in
6 writing by the owner or operator and approved by the executive
7 secretary.

8 9 **R307-340-12. Graphic Arts.**

10 (1) R307-340-12 applies to: packaging and publication
11 rotogravure; packaging and publication flexographic; and specialty
12 printing operations employing solvents containing ink and having
13 plant-wide potential emissions of [~~volatile organic compounds~~
14 +]VOCs[+] equal to or greater than 90 megagrams/yr (100 tons/yr).

15 Potential emissions shall be calculated based on uncontrolled
16 emissions operating at design capacity or at maximum production
17 for 8760 hours/year. (Solvent shall include that used for
18 dilution of ink and for equipment cleaning.) Machines that have
19 both coating units (application of a uniform layer of material
20 across the entire width of a web) and printing units (formation of
21 words, designs and pictures) shall be considered as performing a
22 printing operation. This rule does not apply to offset
23 lithography or letter press printing that do not use [~~volatile~~
24 ~~organic compounds~~]VOCs.

25 (2) No owner or operator of a packaging and publication
26 rotogravure; packaging and publication flexographic, and specialty
27 printing operations employing solvent containing ink may operate,
28 cause, or allow or permit the operation of a facility unless:

29 (a) The volatile fraction of ink, as it is applied to the
30 substrate, contains 25.0 percent by volume or less of organic
31 solvent and 75.0 percent by volume or more of water; or

32 (b) The ink as it is applies to the substrate, less water,
33 contains 60.0 percent by volume or more nonvolatile material; or

34 (c) The owner or operator installs and operates;

35 (i) A carbon adsorption system that reduces the volatile
36 organic emissions from the capture system by a minimum of 90.0
37 percent by weight; or

38 (ii) An incineration system that oxidizes a minimum of 90.0
39 percent of the non-methane [~~volatile organic compounds~~ -]VOCs[-]
40 measured as total combustible carbon) to carbon dioxide and water.

41 (3) A capture system must be used in conjunction with the
42 emission control systems indicated in this section. The design
43 and operation of a capture system must be consistent with good
44 engineering practices and shall be required to provide for an
45 overall reduction in [~~volatile organic compound~~]VOC emissions of
46 at least:

47 (a) 75.0 percent where a publication rotogravure process is
48 employed;

49 (b) 65.0 percent where a packaging rotogravure process is
50 employed; or

51 (c) 60.0 percent where a flexographic printing process is
52 employed.

R307-340-13. Exemptions.

The requirements of R307-340-3 through 10 shall not apply to the following:

(1) sources whose emissions of ~~[volatile organic compounds]~~ VOCs are not more than 6.8 kilograms (15 pounds) in any 24 hour period, nor more than 1.4 kilograms (3 pounds) in any one (1) hour provided the emission rates are certified. These cutoffs apply to the emissions level on a plant-wide basis, and are determined by summing emissions from all coating operations within the same regulated category;

(2) sources used exclusively for chemical or physical analysis or determination of product quality and commercial acceptance provided;

(a) the operation of the source is not an integral part of the production process; and

(b) the emissions from the source do not exceed 363 kilograms (800 pounds) in any one calendar month. These cutoffs apply to the emissions level on a plant-wide basis, and are determined by summing emissions from all coating operations within the same regulated category.

R307-340-14. Capture Systems.

The design, operation and efficiency of any capture system used in conjunction with any emission control system shall be certified in writing by the source owner or operator and approved by the executive secretary. Unless the capture system meets the requirements for a total enclosure, specified in section 60.713(b)(5)(i) of 40 CFR Part 60 Subpart SSS, or unless material balance techniques approved by the executive secretary are used to adequately determine overall VOC capture and destruction or recovery efficiency, the efficiency of the capture system will be determined by test methods approved by the executive secretary. Testing for capture efficiency shall be performed on a case-by-case basis as required by the executive secretary, and shall be consistent with EPA guidance. The requirements of R307-340-4(3)(d) apply to the capture and control device system. When capture and control device efficiency must be independently determined, the overall VOC emission percent reduction equals (percent capture efficiency x percent control device efficiency)/100.

R307-340-15. Testing and Monitoring.

(1) Upon request by the executive secretary, the owner or operator of a ~~[volatile organic compound]~~ VOC source required to comply with R307-340 shall demonstrate compliance by the method of this section or an alternative method approved by the executive secretary.

(2) Test procedures to determine compliance with R307-340 must be approved by the executive secretary and must utilize one of the following methods or an alternative method approved by the executive secretary or equivalent method.

(a) For surface coatings: EPA Reference Method 24 of 40 CFR Part 60

(b) For add-on control equipment: EPA Reference Methods 1 through 4, 18 and 25, of the 40 CFR Part 60;

(c) EPA 340/1-86-016 "A Guide for Surface Coating Calculations;" and

(d) EPA 450/3-84-019 "Procedures for Certifying Quantity of ~~[Volatile organic Compounds]~~ VOCs Emitted by Paint, Ink and Other Coatings."

(3) All tests shall be made by, or under the direction of, a person qualified by training or experience, or both, in the field of air pollution testing. The executive secretary will evaluate test data submitted.

(4) A person proposing to conduct a ~~[volatile organic compound]~~ VOC emissions test shall notify the executive secretary of the intent to test not less than 30 days before the proposed initiation of the test. The notification shall contain the information required by, and be in a format approved by, the executive secretary.

(5) If add-on control equipment is used, continuous monitors of the following parameters shall be installed, periodically calibrated, and operated at all times that the associated control equipment is operating:

(a) Exhaust gas temperatures of all incinerators;

(b) Temperature rise across a catalytic incinerator bed;

(c) Breakthrough of VOCs on a carbon adsorption unit; and

(d) Any other continuous monitoring or recording device required by the executive secretary.

(6) The executive secretary may accept, instead of the testing required in R307-340-15, a certification by the manufacturer of the composition of the coatings if supported by actual batch formulation records. The owner or operator of a VOC source required to comply with R307-340 must obtain certification from the coating manufacturers that the test methods used for determination of the VOC content meet the requirements specified in (2) above. The owner or operator shall make this certification readily available to the Division of Air Quality to allow the results to be used in the daily compliance calculations specified in R307-340-4(5).

(7) The performance of add-on control equipment shall be demonstrated with the required test methods of (2) above at equipment start up and after any major modification to the control equipment. Baseline operating parameters shall be established during the satisfactory (i.e. in-compliance) operation of the control equipment, including operation during all anticipated ranges of process throughput. During subsequent process operation, the owner or operator shall maintain the operating conditions of the add-on controls as close to these baseline conditions as possible. If serious operational problems with an add-on control system are indicated by the daily monitoring required by R307-340-4(2)(d), (such problems may be indicated by changes from baseline conditions), repeat performance tests shall be performed by the owner or operator, and may be required by the executive secretary, as necessary.

(8) To determine compliance with the applicable standards in

1 R307-340, samples shall be taken from the coating as freshly
2 delivered to the reservoir of the coating applicator. All VOC
3 emissions from solvent washing involved in a coating process shall
4 be considered in determining compliance with an emission limit,
5 unless the source owner or operator documents that the VOCs from
6 solvent washing are collected and disposed of in a manner that
7 prevents their evaporation into the atmosphere.
8

9 **R307-340-16. Alternate Methods of Control.**

10 (1) Any person may apply to the executive secretary for
11 approval of an alternate test method, an alternate method of
12 control, an alternate compliance period, an alternate emission
13 limit, or an alternate monitoring schedule. The application must
14 include a demonstration that the proposed alternate produces an
15 equal or greater air quality benefit than that required by R307-
16 340, or that the alternate test method is equivalent to that
17 required by these rules. The executive secretary shall obtain
18 concurrence from EPA when approving an alternate test method, an
19 alternate method of control, an alternate compliance period, an
20 alternate emission limit, or an alternate monitoring schedule.

21 (2) Manufacturer's operational specifications, records, and
22 testings of any control system shall use the applicable EPA
23 Reference Methods of 40 CFR Part 60, the most recent EPA test
24 methods, or EPA-approved state methods, to determine the
25 efficiency of the control device. In addition, the owner or
26 operator must meet the applicable requirements of record keeping
27 for any control device. A record of all tests, monitoring, and
28 inspections required by R307-340 shall be maintained by the owner
29 or operator for a minimum of 2 years and shall be made available
30 to the executive secretary or the executive secretary's
31 representative upon request. Any malfunctioning control device
32 shall be repaired within 15 calendar days after it is found by the
33 owner or operator to be malfunctioning, unless otherwise approved
34 by the executive secretary.

35 (3) For purposes of determining compliance with emission
36 limits, VOCs and nitrogen oxides will be measured by the test
37 methods identified in federal regulation or approved by the
38 executive secretary. Where such a method also inadvertently
39 measures compounds with negligible photochemical reactivity, an
40 owner or operator may exclude these negligibly reactive compounds
41 when determining compliance with an emissions standard.
42

43 **R307-340-16. Compliance Schedule.**

44 All sources within any newly designated nonattainment area
45 for ozone shall be in compliance with this rule within 180 days of
46 the effective date of designation to nonattainment.
47

48 **KEY: air pollution, emission controls, surface coating, ozone**

49 **Date of Enactment or Last Substantive Amendment: 2006**

50 **Notice of Continuation: August 5, 2003**

51 **Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)**